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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/797,764	03/09/2004	Allen C. Thompson	10031310-1	4220

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AGILENT TECHNOLOGIES, INC.
Legal Department, DL429
Intellectual Property Administration
P.O. Box 7599
Loveland, CO 80537-0599

EXAMINER

CROW, ROBERT THOMAS

ART UNIT	PAPER NUMBER
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1634

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/16/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/797,764	THOMPSON ET AL.	
	Examiner Robert T. Crow	Art Unit 1634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 16 January 2007.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-17 is/are pending in the application.
 4a) Of the above claim(s) 16 and 17 is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1-15 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on 9 March 2004 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>3/04; 7/06</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group I in the reply filed on 16 January 2007 is acknowledged.

Claims 16-17 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made without traverse in the reply filed on 16 January 2007.

Information Disclosure Statement

2. The Information Disclosure Statements filed 13 July 2006 and 9 March 2004 are acknowledged. The International Search Report has been considered but has been lined through because there is no publication date. See 37 CFR 1.98.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

- (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
- (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
- (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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4. Claims 1-9 and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Dickinson et al (U.S. Patent Application Publication No. US 2002/0102578 A1, published 1 August 2002).

Regarding claims 1 and 4-5, Dickinson et al teach an array hybridization apparatus for holding a slide. In a single exemplary embodiment, Dickinson et al teach the apparatus of Figure 8, which shows base plate 90, which acts as a backing for said apparatus (paragraph 0026). The base plate is made of a thermoplastic (paragraphs 0141 and 0053-0054). Lid 80 if Figure 8 is the instantly claimed slide, which is defined on page 7 of the instant specification as having at least one planar surface capable of contacting a gasket or spacer. Figure 8 further comprises a sealant in the form of gasket 94 (paragraph 0148), as well as a spacer; namely, the sealant is in a groove in either the lid (i.e., slide; claim 4) or the base plate, which is the substrate (i.e., claim 5; paragraph 0148). The sealant gasket is in a groove of either the base plate or the lid (paragraph 0148); the outside lip of the groove is thus a spacer interposed between said substrate and said slide and is adjacent to the gasket. Figure 8 shows the chamber, which contains a microtiter plate as an array, is defined by the gasket sealant, the base plate substrate, the slide lid, and the groove when the components are held together and the substrate is held flat.

Regarding claim 2, Dickinson et al teach the apparatus of claim 1, wherein the gasket comprises a substantially deformable material; namely, wax (paragraph 0148).

Regarding claim 3, Dickinson et al teach the apparatus of claim 1, wherein the gasket comprises a substantially non-deformable material; namely, rubber (paragraph 0148).

Regarding claim 6, Dickinson et al teach the apparatus of claim 1, wherein the sealant gasket is also attached by immobilization to the lid or base plate (paragraph 0148), and thus is a portion of the substrate because attachment by immobilization make the gasket an the substrate a single structure.

Regarding claim 7, Dickinson et al teach the apparatus of claim 1, wherein the gasket is attached to both the slide and the substrate; namely, the sealant gasket is immobilized (i.e., attached) to the lid by placement in a groove (paragraph 0148), and is also attached to the substrate by an adhesive (paragraph 0074).

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Regarding claims 8-9, Dickinson et al teach the apparatus of claim 1, wherein the spacer is attached either to said slide or to said substrate; namely, the spacer is the outside lip of the groove in which the gasket fits, and the lip of the groove is either part of the base plate substrate (i.e., claim 9; paragraph 0148) or the lid (i.e., claim 8; paragraph 0148).

Regarding claim 13, Dickinson et al teach the apparatus of claim 1, wherein the spacer is an acrylic (paragraphs 0141 and 0053-0054).

5. Claims 1, 4-6, 8-9, and 13 are rejected under 35 U.S.C. 102(a,e) as being anticipated by Lyman et al (U.S. Patent No. 6,555,361 B1, published 29 April 2003).

Regarding claims 1, 5, and 9, Lyman et al teach an array hybridization apparatus. In a single exemplary embodiment, Lyman et al a thermoplastic substrate; namely, Figure 3, which shows a base portion, which is a substrate and is made of a thermoplastic (column 3, lines 10-60 and column 4, lines 1-10). The base portion substrate is a backing for a slide; namely, a top portion (column 3, lines 10-60), which is the instantly claimed slide, as defined on page 7 of the instant specification as having at least one planar surface capable of contacting a gasket or spacer. Lyman et al further teach the apparatus comprises a gasket between said slide and said substrate; namely, the base portion substrate has a groove to receive a gasket in the form of a rubber o-ring (column 3, lines 10-15), and the gasket is thus attached to the substrate by its placement in the groove (i.e., claim 5). Lyman et al further teach a spacer interposed between the slide and the substrate; namely, raised ring 26, which is slightly shorter than the thickness of the o-ring gasket and is attached to said substrate (i.e., claim 9; column 3, lines 10-60). Thus, the o-ring gasket, the base portion substrate, the top portion slide and the raised ring define the chamber when the components are held together and the substrate is held flat.

Regarding claim 6, Lyman et al teach the apparatus of claim 1, wherein the gasket comprises a portion of the substrate; namely, the o-ring gasket is placed in the groove on the bottom portion substrate

(column 3, lines 10-60), and thus comprises a portion of the substrate because the gasket is fitted in the groove.

Regarding claims 4 and 8, the apparatus of claim 1 is discussed above. As also noted above, the instantly claimed slide is defined on page 7 of the instant specification as having at least one planar surface capable of contacting a gasket or spacer. Thus, in an embodiment of claim 1 that is an alternative to the embodiment presented above, the base portion is interpreted as the slide because the base portion has at least one planar surface capable of contacting a gasket or spacer. The top portion is interpreted as the thermoplastic substrate; thus, the apparatus is interpreted as being oriented "upside down" as compared to the previous interpretation. In this interpretation, the gasket is attached to the slide (i.e., base portion) by its placement in the groove (i.e., claim 4). Similarly, in this alternate interpretation, the spacer is raised ring 26 on the bottom portion, which is the slide (i.e., claim 8; column 3, lines 10-60).

Regarding claim 13, Lyman et al teach the array of claim 1, wherein the spacer is plastic (column 4, lines 1-5).

6. Claims 1-3 are rejected under 35 U.S.C. 102(a,e) as being anticipated by Lyman et al (U.S. Patent No. 6,555,361 B1, published 29 April 2003) in view of Stanley et al (U.S. Patent No. 5,082,246, issued 21 January 1992).

Regarding claims 2-3, Lyman et al teach the array hybridization apparatus of claim 1. In a single exemplary embodiment, Lyman et al teach a thermoplastic substrate; namely, Figure 3, which shows a base portion, which is a substrate and is made of a thermoplastic (column 3, lines 10-60 and column 4, lines 1-10). The base portion substrate is a backing for a slide; namely, a top portion (column 3, lines 10-60), which is the instantly claimed slide, as defined on page 7 of the instant specification as having at least one planar surface capable of contacting a gasket or spacer. Lyman et al further teach the apparatus comprises a gasket between said slide and said substrate; namely, the base portion substrate has a groove to receive a gasket in the form of a rubber o-ring (column 3, lines 10-15). Lyman et al further teach a

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spacer interposed between the slide and the substrate; namely, raised ring 26, which is slightly shorter than the thickness of the o-ring gasket (column 3, lines 10-60). Thus, the o-ring gasket, the base portion substrate, the top portion slide and the raised ring define the chamber when the components are held together and the substrate is held flat.

Stanley et al define rubber as being deformed at high temperatures (column 1, lines 50-53); thus, rubber is substantially deformable at high temperatures (i.e., claim 2) and substantially non-deformable (i.e., claim 3) at low temperatures.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 1 and 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dickinson et al (U.S. Patent Application Publication No. US 2002/0102578 A1, published 1 August 2002) in view of Dahm et al (U.S. Patent No. 6,399,394 B1, issued 4 June 2004).

Regarding claims 10-11, Dickinson et al teach the array hybridization apparatus of claim 1. In a single exemplary embodiment, Dickinson et al teach the apparatus of Figure 8, which shows base plate 90, which acts as a backing for said apparatus (paragraph 0026). The base plate is made of a thermoplastic (paragraphs 0141 and 0053-0054). Lid 80 if Figure 8 is the instantly claimed slide, which is defined on page 7 of the instant specification as having at least one planar surface capable of contacting a gasket or spacer. Figure 8 further comprises a sealant in the form of gasket 94 (paragraph 0148), as well as a spacer; namely, the sealant gasket is in a groove in either the lid or the base plate, which is the substrate (paragraph 0148). The sealant gasket is in a groove of either the base plate or the lid (paragraph 0148); the outside lip of the groove is thus a spacer interposed between said substrate and said slide and is adjacent to the gasket. Figure 8 shows the chamber, which contains a microtiter plate as an array, is defined by the gasket sealant, the base plate substrate, the slide lid, and the groove when the components are held together and the substrate is held flat.

Dickinson et al are silent with respect to the support ridges.

However, Dahm et al teach an array apparatus comprising a substrate having a support ridge; namely, element 30 of Figure 8 has a support ridge in the form of the portion of element 30 having bores 120 and 122 therein. This portion of element 30 is the backside because it is on the surface facing away from the remainder of the device. Dahm et al show the ridge extends along the entire length element 30 (Figure 8); because the claim does not define any other structure to delineate which direction is the "length" and which direction is the "width," the support ridge as shown is interpreted as being either along the entire length (i.e., claim 10) or width (i.e., claim 11) of the device. Dahm et al teach the support ridge has the added advantage of allowing bores to be provided, in which probes for monitoring conditions can be inserted (column 10, lines 48-65).

It would therefore have been obvious to a person of ordinary skill in the art at the time the claimed invention was made to have modified the apparatus as taught by Dickinson et al with support ridge as taught by Dahm et al with a reasonable expectation of success. The ordinary artisan would have

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been motivated to make such a modification because said modification would have resulted in an apparatus having allowing monitoring of the reactions conditions using bores in the support ridges as explicitly taught by Dahm et al (column 10, lines 48-65).

10. Claims 1 and 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lyman et al (U.S. Patent No. 6,555,361 B1, published 29 April 2003) in view of Dahm et al (U.S. Patent No. 6,399,394 B1, issued 4 June 2004).

Regarding claims 10-11, Lyman et al teach the array hybridization apparatus of claim 1. In a single exemplary embodiment, Lyman et al teach a thermoplastic substrate; namely, Figure 3, which shows a base portion, which is a substrate and is made of a thermoplastic (column 3, lines 10-60 and column 4, lines 1-10). The base portion substrate is a backing for a slide; namely, a top portion (column 3, lines 10-60), which is the instantly claimed slide, as defined on page 7 of the instant specification as having at least one planar surface capable of contacting a gasket or spacer. Lyman et al further teach the apparatus comprises a gasket between said slide and said substrate; namely, the base portion substrate has a groove to receive a gasket in the form of a rubber o-ring (column 3, lines 10-15). Lyman et al further teach a spacer interposed between the slide and the substrate; namely, raised ring 26, which is slightly shorter than the thickness of the o-ring gasket (column 3, lines 10-60). Thus, the o-ring gasket, the base portion substrate, the top portion slide and the raised ring define the chamber when the components are held together and the substrate is held flat.

Lyman et al are silent with respect to the support ridges.

However, Dahm et al teach an array apparatus comprising a substrate having a support ridge; namely, element 30 of Figure 8 has a support ridge in the form of the portion of element 30 having bores 120 and 122 therein. This portion of element 30 is the backside because it is on the surface facing away from the remainder of the device. Dahm et al show the ridge extends along the entire length element 30 (Figure 8); because the claim does not define any other structure to delineate which direction is the

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"length" and which direction is the "width," the support ridge as shown is interpreted as being either along the entire length (i.e., claim 10) or width (i.e., claim 11) of the device. Dahm et al teach the support ridge has the added advantage of allowing bores to be provided, in which probes for monitoring conditions can be inserted (column 10, lines 48-65).

It would therefore have been obvious to a person of ordinary skill in the art at the time the claimed invention was made to have modified the apparatus as taught by Lyman et al with support ridge as taught by Dahm et al with a reasonable expectation of success. The ordinary artisan would have been motivated to make such a modification because said modification would have resulted in an apparatus having allowing monitoring of the reactions conditions using bores in the support ridges as explicitly taught by Dahm et al (column 10, lines 48-65).

11. Claims 1 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dickinson et al (U.S. Patent Application Publication No. US 2002/0102578 A1, published 1 August 2002) in view of Mogard et al (U.S. Patent No. 6,216,905 B1, issued 17 April 2001).

Regarding claim 12, Dickinson et al teach the array hybridization apparatus of claim 1. In a single exemplary embodiment, Dickinson et al teach the apparatus of Figure 8, which shows base plate 90, which acts as a backing for said apparatus (paragraph 0026). The base plate is made of a thermoplastic (paragraphs 0141 and 0053-0054). Lid 80 if Figure 8 is the instantly claimed slide, which is defined on page 7 of the instant specification as having at least one planar surface capable of contacting a gasket or spacer. Figure 8 further comprises a sealant in the form of gasket 94 (paragraph 0148), as well as a spacer; namely, the sealant gasket is in a groove in either the lid or the base plate, which is the substrate (paragraph 0148). The sealant gasket is in a groove of either the base plate or the lid (paragraph 0148); the outside lip of the groove is thus a spacer interposed between said substrate and said slide and is adjacent to the gasket. Figure 8 shows the chamber, which contains a microtiter plate as an array, is defined by the

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gasket sealant, the base plate substrate, the slide lid, and the groove when the components are held together and the substrate is held flat.

Dickinson et al teach the spacer is attached either to said slide or to said substrate; namely, the spacer is the outside lip of the groove in which the gasket fits, and the lip of the groove is either part of the base plate substrate (i.e., claim 9; paragraph 0148) or the lid (i.e., claim 8; paragraph 0148). Dickinson et al do not teach the spacer is attached to both the slide and the substrate; i.e., Dickinson et al do not teach single integral structure.

However, Mogard et al teach thermoplastic materials having fully integrated single structures comprising a substrate in the form of base flange 36, a slide in the form of cap 38, and a space in the form of hinge 40 (Figure 1 and column 4, lines 48-65). Mogard et al further teach the single integrated structure has the added advantage of providing more economical manufacturing by injection molding (column 8, lines 1-15).

It would therefore have been obvious to a person of ordinary skill in the art at the time the claimed invention was made to have modified the apparatus comprising an attached spacer as taught by Dickinson et al with the fully integrated spacer as taught by Mogard et al with a reasonable expectation of success. The ordinary artisan would have been motivated to make such a modification because said modification would have resulted in an apparatus having the added advantage of being more economically manufactured by injection molding as explicitly taught by Mogard et al (column 8, lines 1-15).

12. Claims 1 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lyman et al (U.S. Patent No. 6,555,361 B1, published 29 April 2003) in view of Mogard et al (U.S. Patent No. 6,216,905 B1, issued 17 April 2001).

Regarding claim 12, Lyman et al teach the array hybridization apparatus of claim 1. In a single exemplary embodiment, Lyman et al a thermoplastic substrate; namely, Figure 3, which shows a base

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portion, which is a substrate and is made of a thermoplastic (column 3, lines 10-60 and column 4, lines 1-10). The base portion substrate is a backing for a slide; namely, a top portion (column 3, lines 10-60), which is the instantly claimed slide, as defined on page 7 of the instant specification as having at least one planar surface capable of contacting a gasket or spacer. Lyman et al further teach the apparatus comprises a gasket between said slide and said substrate; namely, the base portion substrate has a groove to receive a gasket in the form of a rubber o-ring (column 3, lines 10-15). Lyman et al further teach a spacer interposed between the slide and the substrate; namely, raised ring 26, which is slightly shorter than the thickness of the o-ring gasket (column 3, lines 10-60). Thus, the o-ring gasket, the base portion substrate, the top portion slide and the raised ring define the chamber when the components are held together and the substrate is held flat.

While Lyman et al further teach the spacer is attached to said substrate (column 3, lines 10-60). Lyman et al do not teach the spacer is attached to both the slide and the substrate; i.e., Dickinson et al do not teach single integral structure.

However, Mogard et al teach thermoplastic materials having fully integrated single structures comprising a substrate in the form of base flange 36, a slide in the form of cap 38, and a space in the form of hinge 40 (Figure 1 and column 4, lines 48-65). Mogard et al further teach the single integrated structure has the added advantage of providing more economical manufacturing by injection molding (column 8, lines 1-15).

It would therefore have been obvious to a person of ordinary skill in the art at the time the claimed invention was made to have modified the apparatus comprising an attached spacer as taught by Lyman et al with the fully integrated spacer as taught by Mogard et al with a reasonable expectation of success. The ordinary artisan would have been motivated to make such a modification because said modification would have resulted in an apparatus having the added advantage of being more economically manufactured by injection molding as explicitly taught by Mogard et al (column 8, lines 1-15).

13. Claims 1 and 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dickinson et al (U.S. Patent Application Publication No. US 2002/0102578 A1, published 1 August 2002) in view of Wilding et al (U.S. Patent No. 5,587,128, issued 24 December 1996).

Regarding claims 14-15, Dickinson et al teach the array hybridization apparatus of claim 1. In a single exemplary embodiment, Dickinson et al teach the apparatus of Figure 8, which shows base plate 90, which acts as a backing for said apparatus (paragraph 0026). The base plate is made of a thermoplastic (paragraphs 0141 and 0053-0054). Lid 80 if Figure 8 is the instantly claimed slide, which is defined on page 7 of the instant specification as having at least one planar surface capable of contacting a gasket or spacer. Figure 8 further comprises a sealant in the form of gasket 94 (paragraph 0148), as well as a spacer; namely, the sealant gasket is in a groove in either the lid or the base plate, which is the substrate (paragraph 0148). The sealant gasket is in a groove of either the base plate or the lid (paragraph 0148); the outside lip of the groove is thus a spacer interposed between said substrate and said slide and is adjacent to the gasket. Figure 8 shows the chamber, which contains a microtiter plate as an array, is defined by the gasket sealant, the base plate substrate, the slide lid, and the groove when the components are held together and the substrate is held flat.

Dickinson et al are silent with respect to the size of the chamber and the height of the spacer.

However, Wilding et al teach an array hybridization apparatus comprising a chamber having a height (i.e., depth) of between 25 and 1000 microns; namely, 300 microns (i.e., claim 15; column 4, lines 36-60). Making a chamber having a height of 300 microns would require a spacer height of less than 300 microns (i.e., claim 14). Wilding et al further teach a height of 300 microns has the added advantage of permitting efficient heat transfer to the contents of the chamber during assays (i.e., amplification; column 4, lines 36-60).

It would therefore have been obvious to a person of ordinary skill in the art at the time the claimed invention was made to have modified the apparatus comprising a chamber as taught by

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Dickinson et al with the 300 micron height as taught by Wilding et al with a reasonable expectation of success. The modification would result in a chamber (i.e., claim 15) and a spacer (i.e., claim 14) having heights of 300 microns. The ordinary artisan would have been motivated to make such a modification because said modification would have resulted in an apparatus having the added advantage of permitting efficient heat transfer to the contents of the chamber during assays as explicitly taught by Wilding et al (column 4, lines 36-60).

14. Claims 1 and 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lyman et al (U.S. Patent No. 6,555,361 B1, published 29 April 2003) in view of Wilding et al (U.S. Patent No. 5,587,128, issued 24 December 1996).

Regarding claims 14-15, Lyman et al teach the array hybridization apparatus of claim 1. In a single exemplary embodiment, Lyman et al teach a thermoplastic substrate; namely, Figure 3, which shows a base portion, which is a substrate and is made of a thermoplastic (column 3, lines 10-60 and column 4, lines 1-10). The base portion substrate is a backing for a slide; namely, a top portion (column 3, lines 10-60), which is the instantly claimed slide, as defined on page 7 of the instant specification as having at least one planar surface capable of contacting a gasket or spacer. Lyman et al further teach the apparatus comprises a gasket between said slide and said substrate; namely, the base portion substrate has a groove to receive a gasket in the form of a rubber o-ring (column 3, lines 10-15). Lyman et al further teach a spacer interposed between the slide and the substrate; namely, raised ring 26, which is slightly shorter than the thickness of the o-ring gasket (column 3, lines 10-60). Thus, the o-ring gasket, the base portion substrate, the top portion slide and the raised ring define the chamber when the components are held together and the substrate is held flat.

Lyman et al are silent with respect to the size of the chamber and the height of the spacer.

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However, Wilding et al teach an array hybridization apparatus comprising a chamber having a height (i.e., depth) of between 25 and 1000 microns; namely, 300 microns (i.e., claim 15; column 4, lines 36-60). Making a chamber having a height of 300 microns would require a spacer height of less than 300 microns (i.e., claim 14). Wilding et al further teach a height of 300 microns has the added advantage of permitting efficient heat transfer to the contents of the chamber during assays (i.e., amplification; column 4, lines 36-60).

It would therefore have been obvious to a person of ordinary skill in the art at the time the claimed invention was made to have modified the apparatus comprising a chamber as taught by Lyman et al with the 300 micron height as taught by Wilding et al with a reasonable expectation of success. The modification would result in a chamber (i.e., claim 15) and a spacer (i.e., claim 14) having heights of 300 microns. The ordinary artisan would have been motivated to make such a modification because said modification would have resulted in an apparatus having the added advantage of permitting efficient heat transfer to the contents of the chamber during assays as explicitly taught by Wilding et al (column 4, lines 36-60).

Conclusion

15. No claim is allowed.
16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert T. Crow whose telephone number is (571) 272-1113. The examiner can normally be reached on Monday through Friday from 8:00 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ram Shukla can be reached on (571) 272-0735. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Robert T. Crow
Examiner
Art Unit 1634



RAM R. SHUKLA, PH.D.
SUPERVISORY PATENT EXAMINER